Introduction

Ulcers are essentially **tissue breakdown**. With multiple etiologies, history and presentation will often clinch the diagnosis. **Stage** of lesion is important for documentation and therapy. Ulcers are treated by correcting the underlying pathology, **debriding necrotic tissue** to keep a clean ulcer base, good wound care, and antibiotics only for cellulitis. Zinc, vitamins, and creams have not been shown to improve outcomes.

1) Compression Ulcers

Found in **bed-ridden** patients, it's sufficient evidence for **abuse**. It occurs at areas where bone comes close to the skin (**sacrum**, **knee**, and **ankle**). It's caused by prolonged **pressure** on a dependent area. The patient should be **rolled** frequently to alleviate pressure. The treatment is the same idea: keep **pressure off** the wound with rolling, air mattresses, etc.

2) Diabetic

People with diabetes suffer from **neuropathy** (they can't feel their shoes crushing their toes) and **microvascular disease** (so they have a component of arterial insufficiency). Because diabetic neuropathy starts distally and moves proximally, the ulcers are usually found in the **feet** and **toes** including their **heels** and **ankles**. Theoretically blood glucose control, elevation, and cleaning of the wounds will help them heal. In reality, these ulcers often lead to **amputations**.

3) Arterial Insufficiency

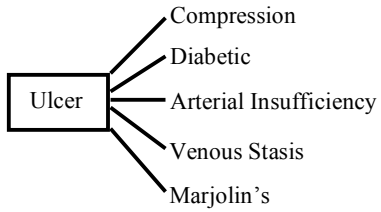
If an ulcer is at the **tips of toes** (i.e. as far from the heart as possible) think of arterial insufficiency. While this could be from an embolus (cholesterol emboli after catheterization), it's usually seen in **peripheral vascular disease** with typical **stigmata: scaly** skin, **hairless** feet, and **decreased pulses**. Claudication may be present. Do an **ultrasound Doppler** to check for macrovascular disease. If it's ⊕, confirm with a **CT angiogram. Revascularization** with stenting or Bypass can help. If there are no good vessels (microvascular disease) then **amputate**.

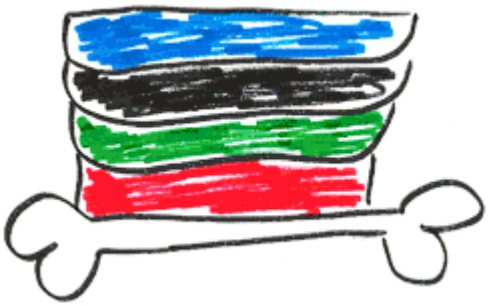
4) Venous Insufficiency

Because the veins fail to drain, fluids leaks out. Edema causes compression. The skin will be **edematous**, **indurated**, and **hyperpigmented** (indicative of long-standing edema), called stasis dermatitis. The ulcer is almost always **above** the **medial malleolus**. Treat the edema by controlling the underlying disease (CHF/cirrhosis/nephrosis with diuretics), elevate the feet, and use **compression stalkings** to decrease edema.

5) Marjolin's Ulcer

A result of chronic inflammation, this is a **sqaumous cell carcinoma.** It occurs at sites of a chronic sinus draining tract or on a wound that heals and breaks down over and over again (like a 3rd degree burn or radiation). The ulcers are **ugly**, **deep**, and with **heaped up margins**; they don't heal. Confirm with a **biopsy** and treat with **wide excision.**





Stage I: Nonblanching Erythema
Stage II: Epidermis and Partial Dermis
Stage III: Through Epi and Dermis, Ø
Stage IV: Muscle or Bone

Ulcers	*Patient*	*Where*	*Treatment*
Compression	Bed-ridden patients with wounds on dependent bone-skin contact	Sacrum Heel Shoulders	Rolling (PPx) Air Mattress
Diabetic Ulcer	Diabetic patient with ulcers secondary to tight or injured feet neuropathy and arteriography	Foot Toe Heel	DM Control Amputation
Arterial Insufficiency	PAD patients with scaly, hairless, skin with decreased pulses	Tips of Toes	U/S CT Angiogram Stent vs Bypass Stop Smoking Cilostazol
Venous Stasis	Edematous, hyperpigmented, Indurated Skin	Above Medial Malleolus	Compression Stockings
Marjolin's Ulcer	Sinus draining tracts, old wounds, heaped up margins, deep ulcers that don't heal	Anywhere	Biopsy Wide Resection